

Remarks

Claims 1-6 are pending in the application. Reconsideration and allowance of the claims is respectfully requested.

Rejections under 35 U.S.C § 103(a)

The Office Action rejects claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over Suzuki (JP 63-289853) in view of Tsukihara (JP 2000-269317) and Wu (U.S. 6,214,696).

Independent Claim 1

Independent claim 1, as amended, recites:

the first covering insulation layer is over a top surface of the electrically conductive filling layer and the sidewall insulation layer, and

a trench contact insulation layer being only above a surface of the electrically conductive filling layer.

(Emphasis added). Applicants respectfully submit that the cited references do not teach these limitations.

The Office Action asserts that layer 30 of Tsukihara corresponds to the recited first covering insulation layer. Applicants submit, however, that layer 30 is only over a top surface of the semiconductor substrate and a top surface of the electrically conductive filling layer (7). The first covering insulation layer 30 is not over the sidewall insulation layers, as recited in amended claim 1. This defect is not cured by the other cited references. For at least this reason, Applicants submit that claim is patentable over Tsukihara.

On the other hand, the Office Action asserts that the oxide film 2 of Suzuki corresponds to the recited trench contact insulation layer. Applicants note that the oxide film 2 is also over an epitaxial layer 6 and a filler material 3.

However, claim 1 recites that the trench contact insulation layer is only above the electrically conductive filling layer. (See Figure 1N, refs 7 and 9.) The trench contact insulation layer is not the same layer as the sidewall insulation layer. (See Figure 1N, ref 6.) Applicants submit that this arrangement advantageously

reduces leakage currents. For at least this reason, Applicants submit that claim 1 is patentable over Suzuki.

Accordingly, Applicants respectfully submit that claim 1 is patentable over the cited references. Applicants, therefore, respectfully request withdrawal of the rejection under 35 U.S.C § 103(a) against claim 1 and those claims that depend from claim 1.

Conclusion

Applicants believe the claims, as presently amended, adequately address the rejections in the office action. Accordingly, issuance of the patent is respectfully requested. Should the Examiner deem a telephone conference to be of assistance in advancing the application to issuance, the Examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,

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